Opportunities for Natural System Drainage and Open Space

Northgate South Lot

Northgate Stakeholders Group
April 20, 2004

Seattle Public Utilities

Presentation Overview

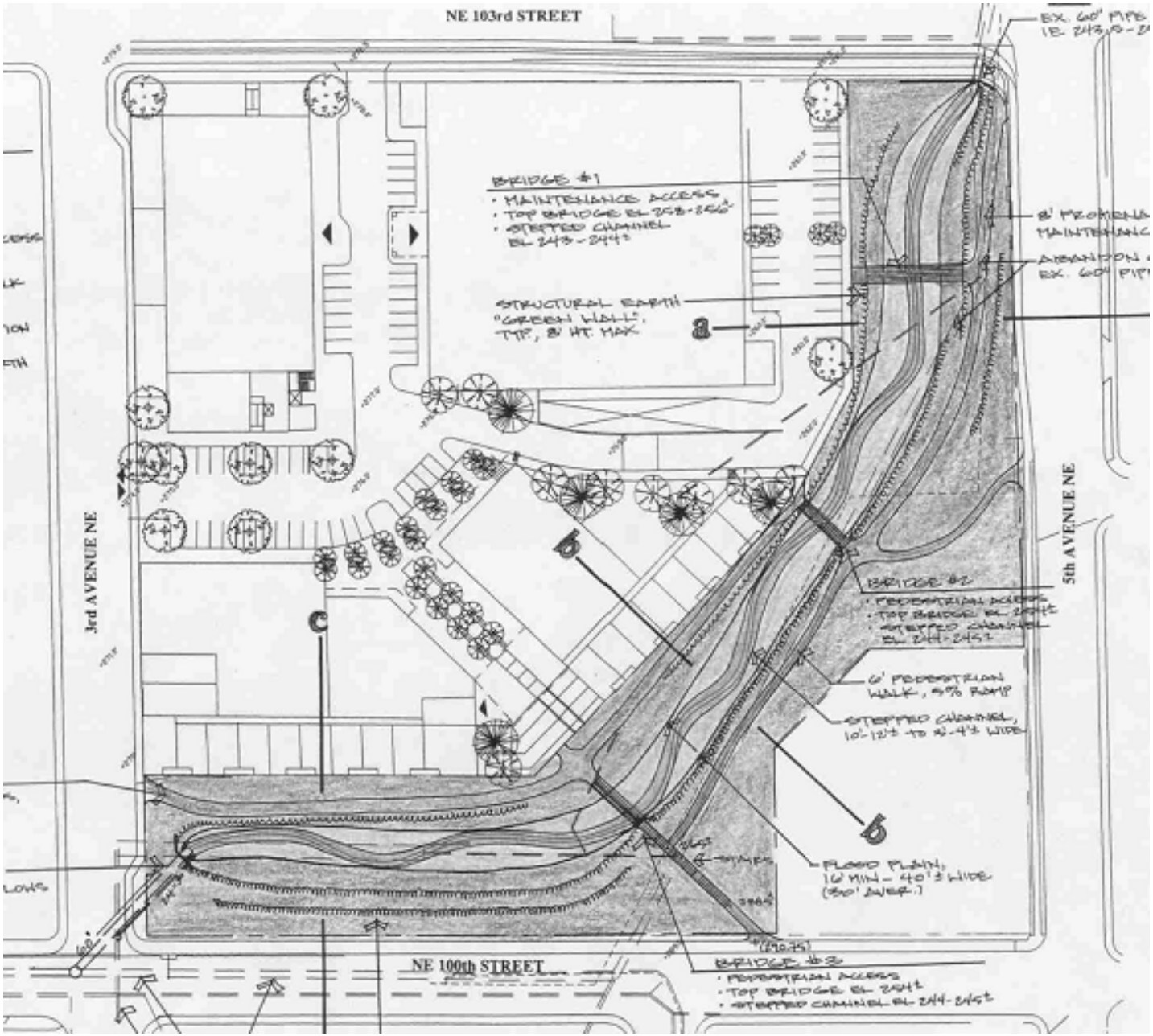
- Overview of Options
- Overview of Evaluation Method
- Technical Team Results
- Benefit Comparison Process

Stakeholder Schedule

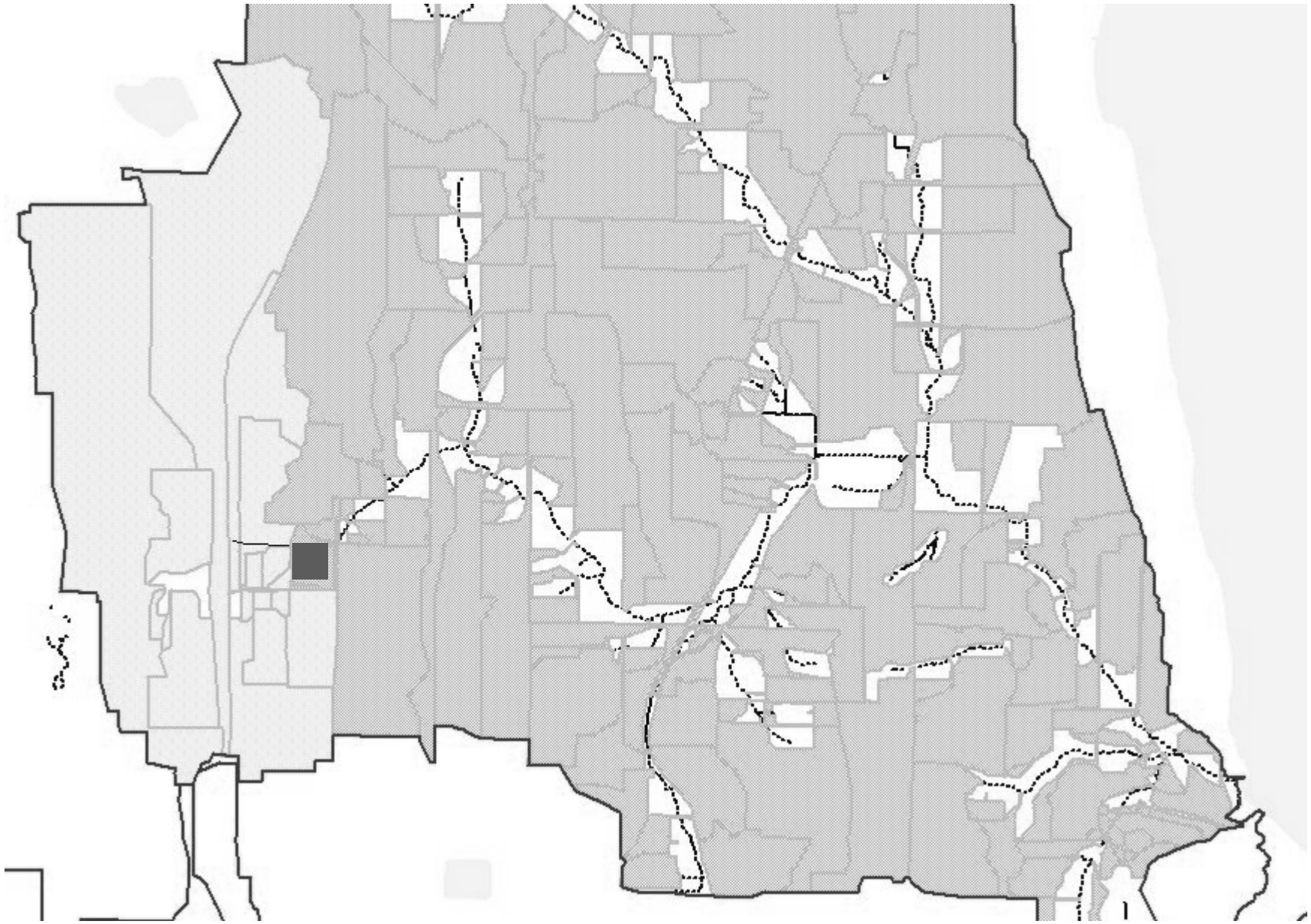
3/18	Overview of options, process, roles
4/20	Discussion of criteria, analysis, results
TBD	Brownbag Discussion (eve of 4/27 or 5/4)
5/11	Stakeholders input on alternatives analysis
5/13	Community Forum
5/20	Presentation on final analysis, recommendations
6/3	Stakeholders input on recommendation
June	Recommendation forwarded to City Council

Overview of Three Options

Daylight

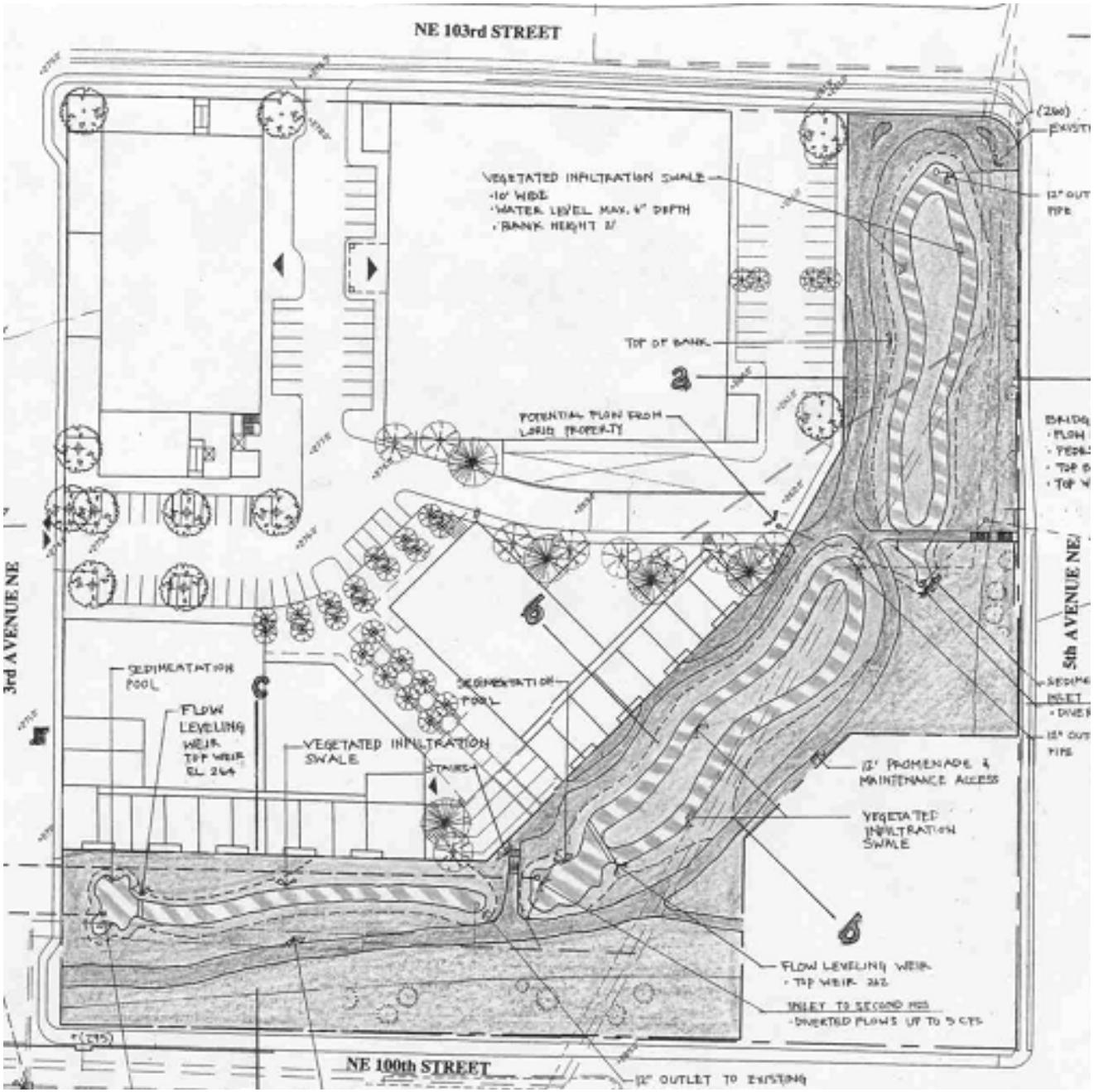

NE 103rd STREET
NE 100th STREET
3rd AVENUE NE
5th AVENUE NE
BRIDGE #1
• MAINTENANCE ACCESS
• TOP BRIDGE EL 258-256±
• STEPPED CHANNEL
EL 248-244±
STRUCTURAL EARTH
"GREEN WALL",
TYP, 8' HT MAX
a
b
c
BRIDGE #2
• PEDESTRIAN ACCESS
• TOP BRIDGE EL 248±
• STEPPED CHANNEL
EL 244-240±
6' PEDESTRIAN
WALK, 5% RAMP
STEPPED CHANNEL,
10'-12'± TO 42'-47'± WIDE
FLOOD PLAIN,
16' MIN - 40'± WIDE
(350' DIAM.)
BRIDGE #3
• PEDESTRIAN ACCESS
• TOP BRIDGE EL 236±
• STEPPED CHANNEL EL 244-240±

Daylight - Drainage Area

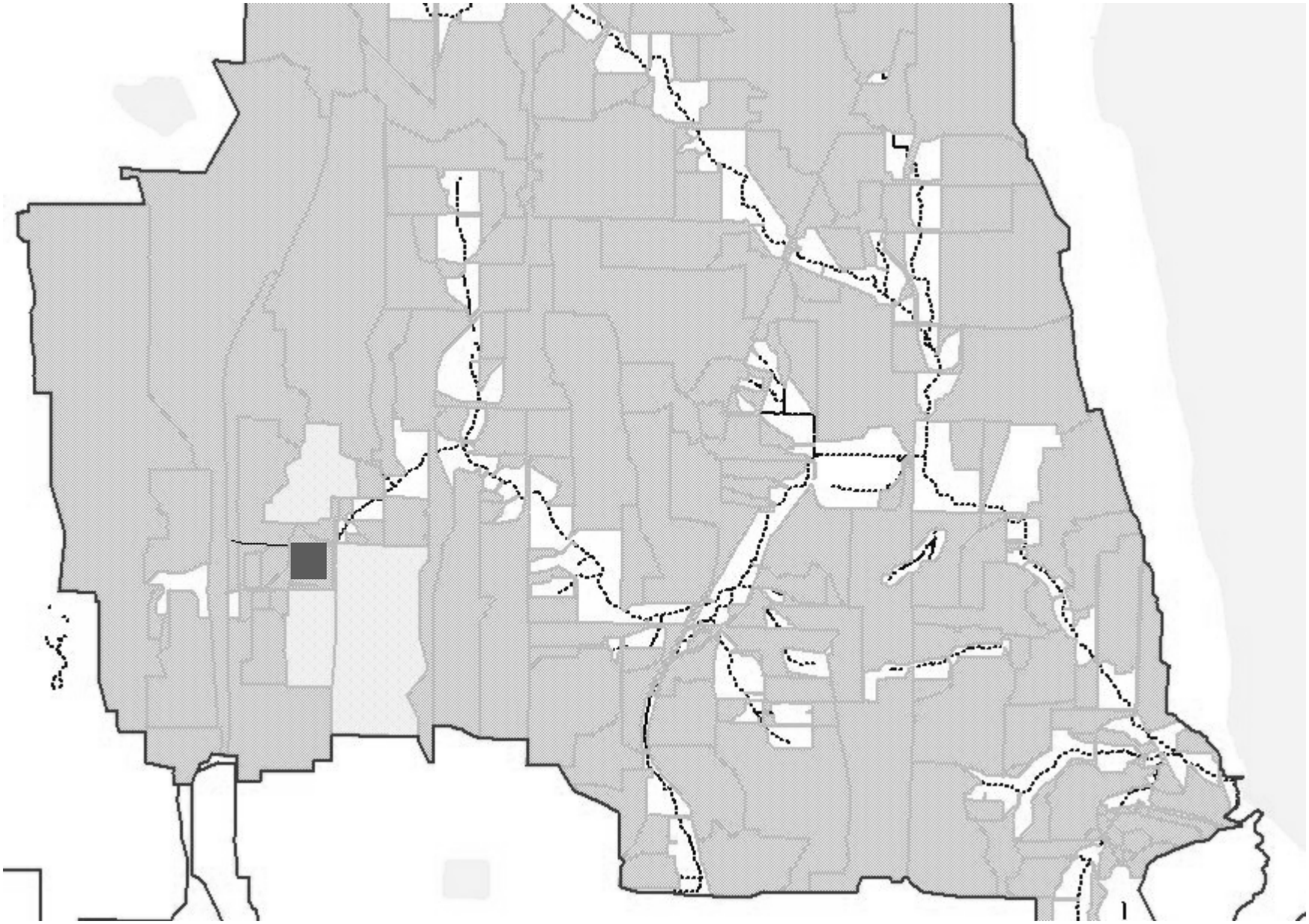


Daylight - Conveyance

Natural Systems

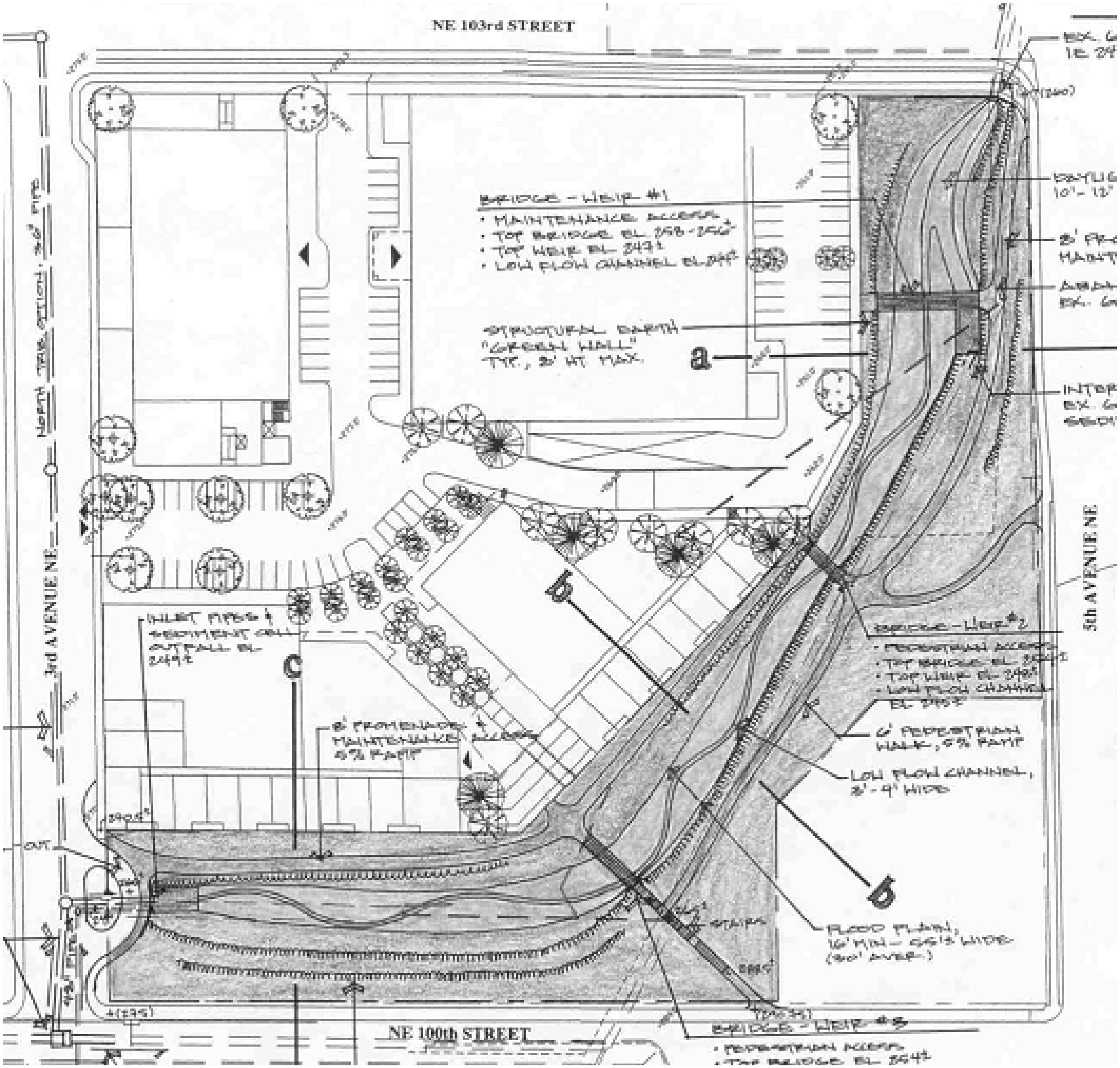


Natural Systems - Drainage Area



Natural Systems - Conveyance

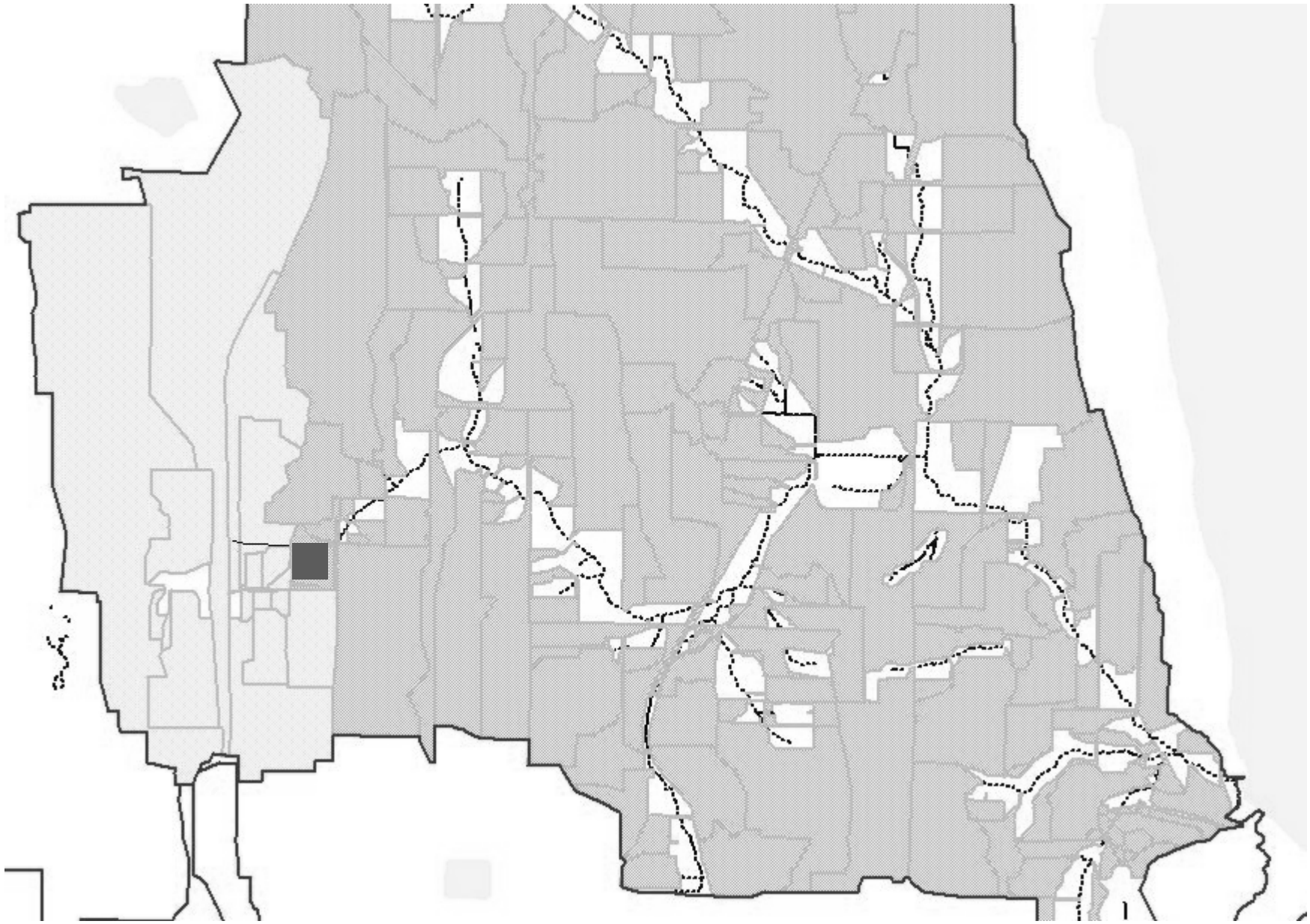
Hybrid



NE 103rd STREET
NE 100th STREET
3rd AVENUE NE
5th AVENUE NE
BRIDGE - WEIR #1
STRUCTURAL EARTH "GREEN WALL" TYP., 3' HT. MAX.
BRIDGE - WEIR #2
6' PEDESTRIAN WALK, 5% RAMP
LOW FLOW CHANNEL, 3'-4' WIDE
FLOOD PLAIN,
BRIDGE - WEIR #3
STAIRS
a
b
b
c

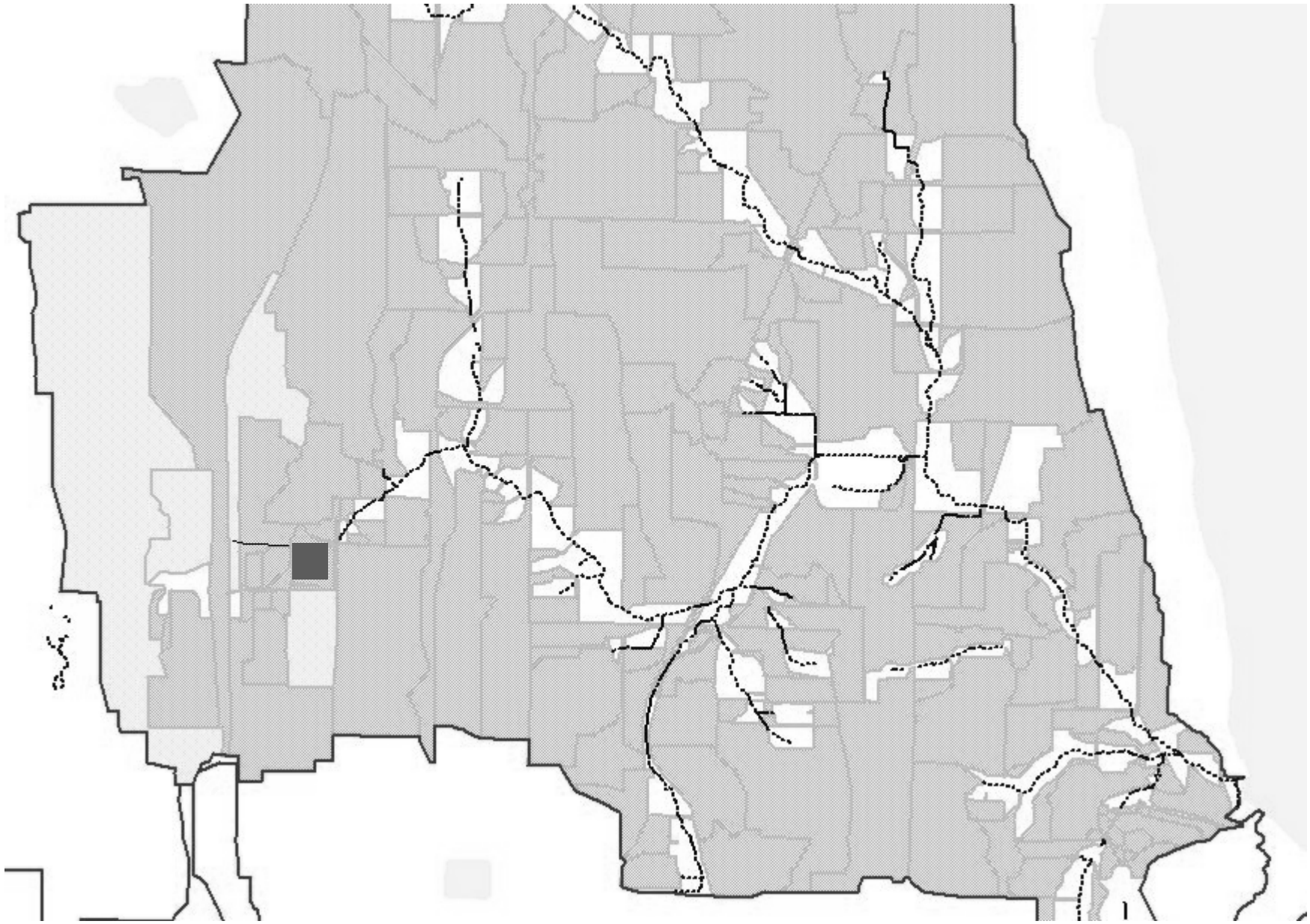
Hybrid - Main Conveyance Option

Hybrid - Main Option Drainage Area

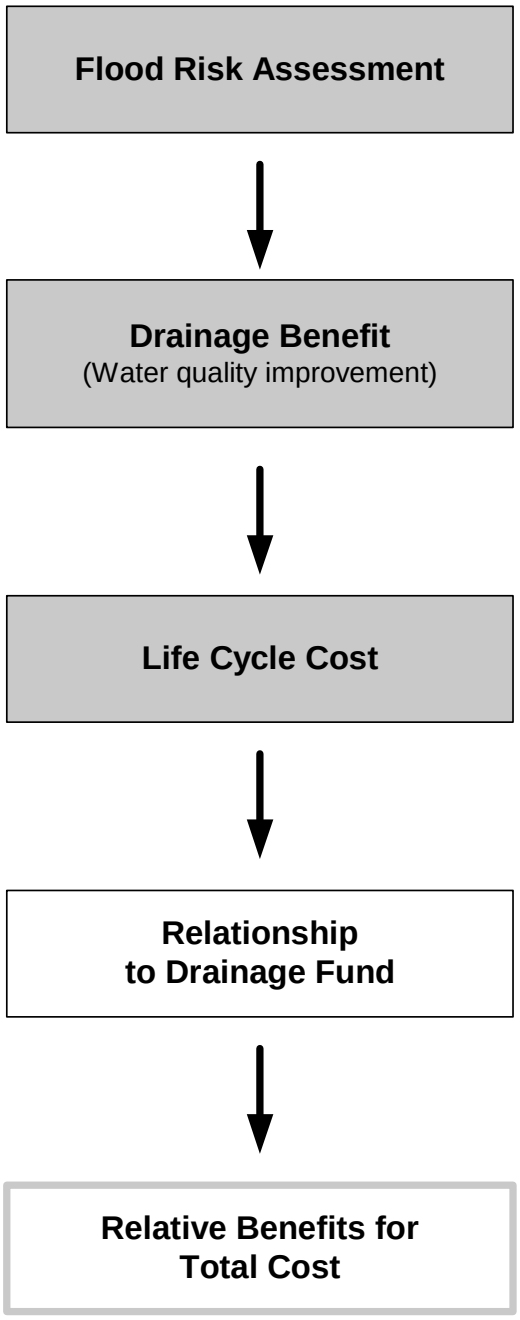


Hybrid - North Conveyance Option

Hybrid - North Option Drainage Area



Evaluation Process

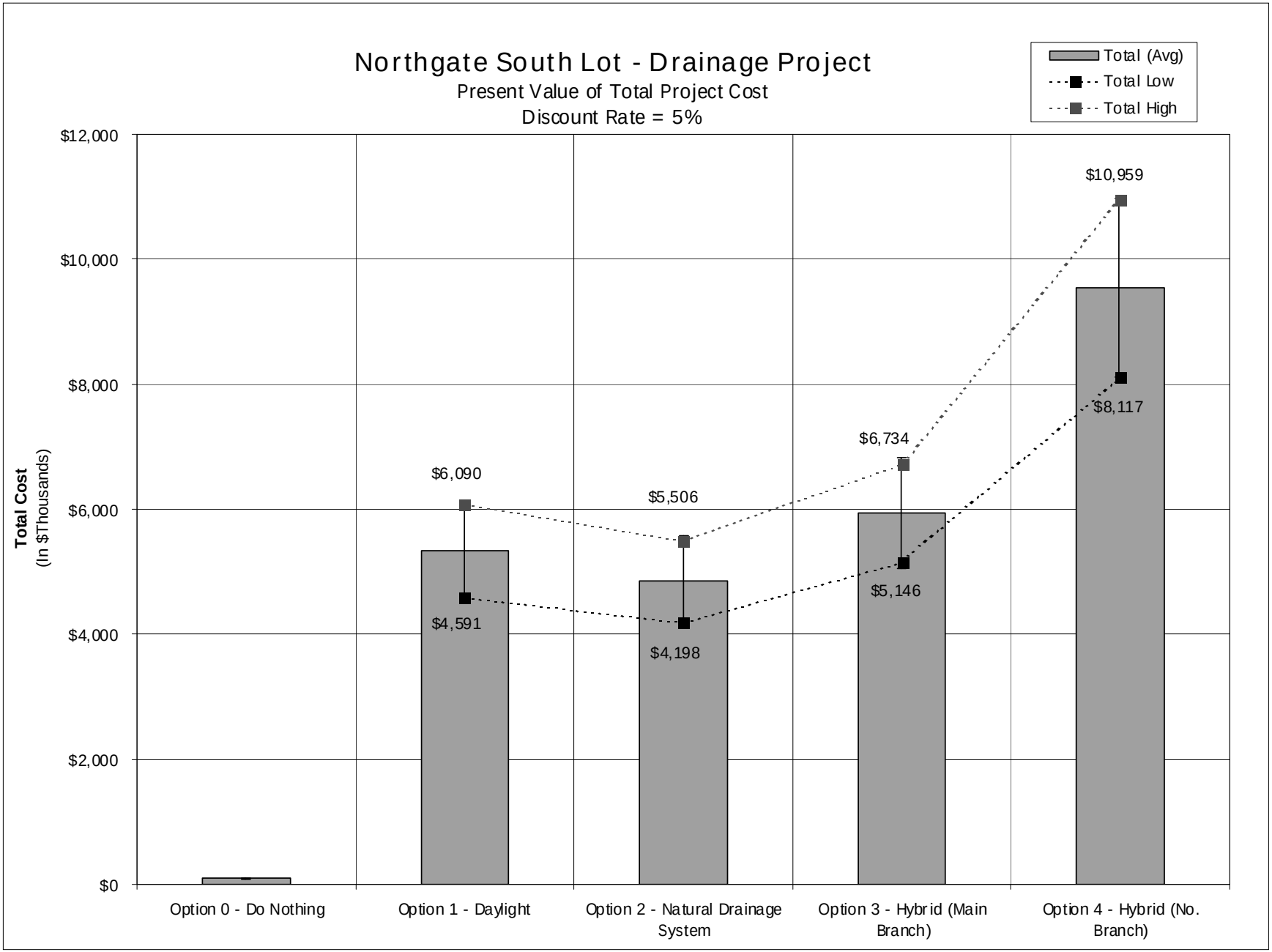


Technical Team Overview

- Illustrations
- Flood Risk Evaluation
- Construction and O&M Cost Estimates
- Water Quality Evaluation Method
- Benefit Comparison Chart

Flood Risk Analysis

Total Present Value

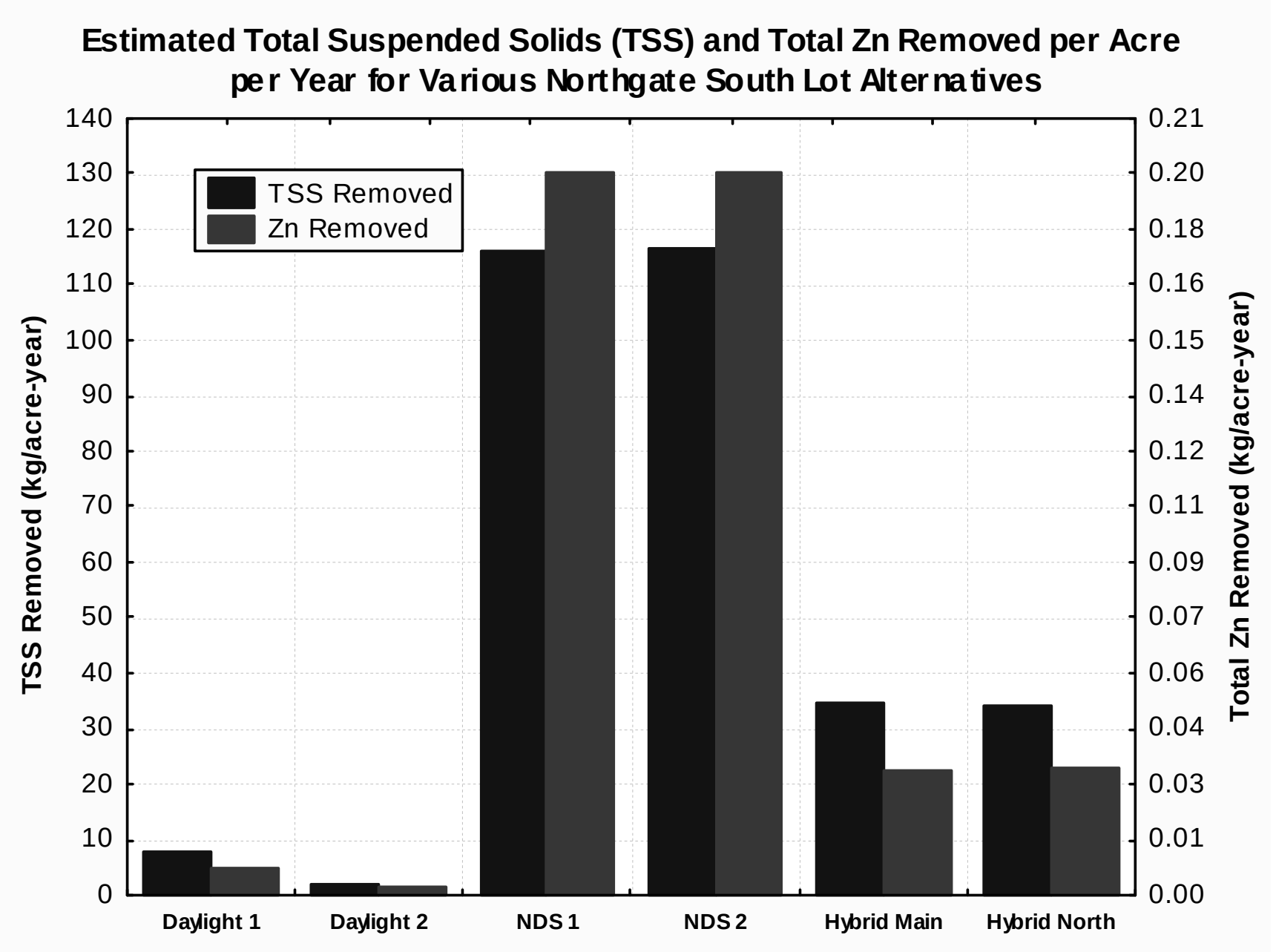


Water Quality - Method

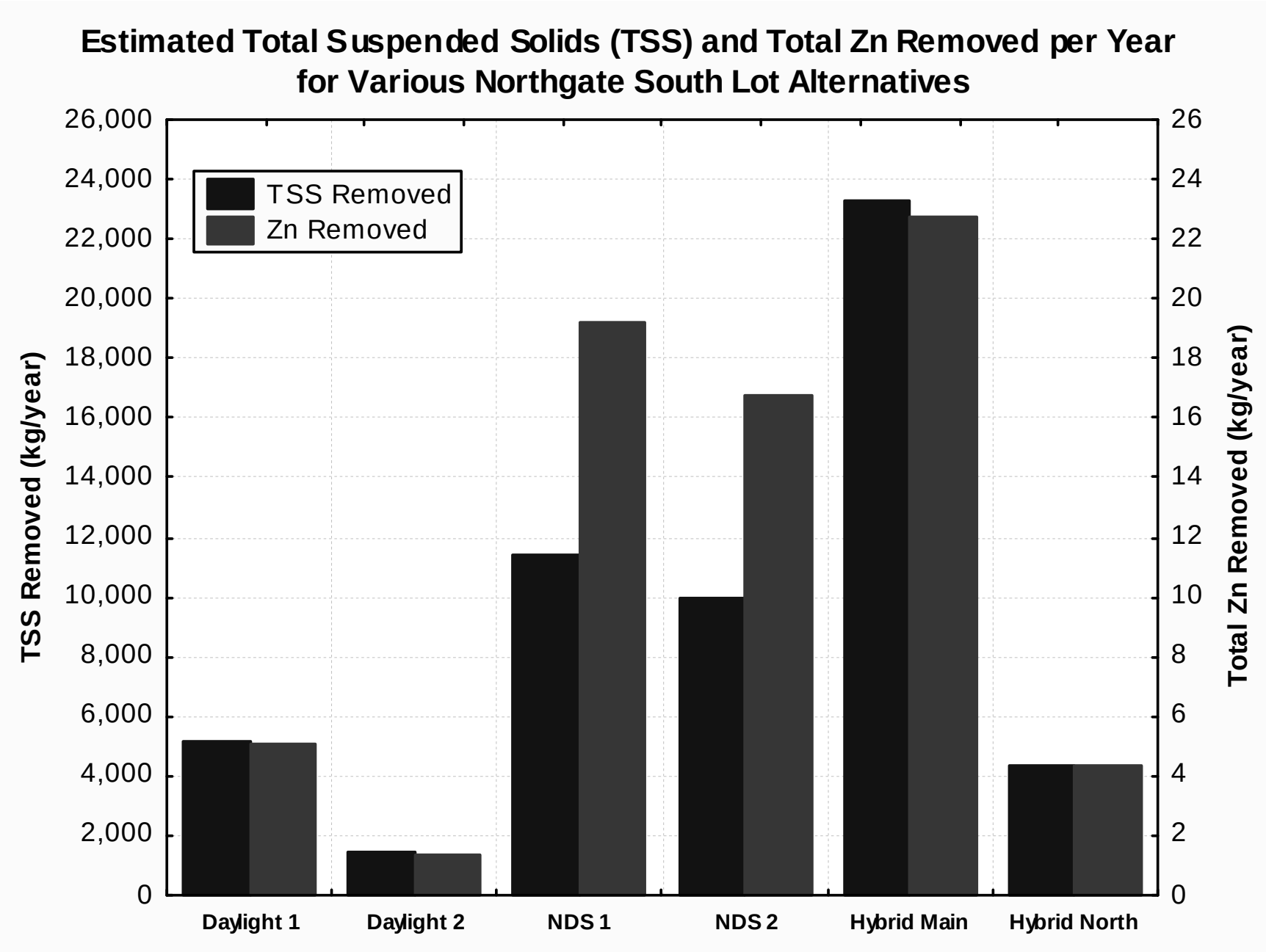
1. Determine pollutant loading from basins
2. Calculate pre-treatment*
3. Determine amount of flow diverted to facility and treated
4. Apply pollutant removal efficiencies*
5. Determine relative range of pollutants removed for each option

* scaling factor applied

Water Quality - Results



Water Quality - Results



Benefit Comparison Chart

- Drainage
  - water quality
  - creek protection flow control
  - infiltration
  - downstream flood protection
  - impervious surface reduction
  - high-flow by-pass capability

Benefit Comparison Chart

- Additional Environmental
  - Surface base flow
  - Constructed habitat
- Community
  - Open Space
  - Pedestrian Connections
  - Water features

Evaluation Process